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Immunotherapy of Non-Hodgkin's Lymphomas.

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Recent years have witnessed the development of a variety of promising immunotherapies for treating patients with non-Hodgkin's lymphomas. Foremost among these advances is the exciting success of monoclonal antibodies directed against lymphocyte surface antigens. Rituximab is a chimeric (human-mouse) anti-CD20 antibody that induces responses in approximately half of the patients with relapsed indolent lymphomas and a third of patients with relapsed aggressive lymphomas when used as a single agent. Response rates appear even higher (up to 70%) for newly diagnosed patients treated with Rituximab monotherapy. Other promising antibodies for treatment of B cell malignancies include epratuzumab (anti-CD22), CAMPATH-1H (anti-CD52w), and Hu1D10 (anti-class II HLA). Even more exciting than antibody monotherapy is the prospect of combination antibody therapy (e.g. rituximab + epratuzumab) or combination chemotherapy and antibody therapy. In this regard, a recent phase III randomized trial from the GELA group in France demonstrated statistically significantly superior complete and overall response rates and superior event-free and overall survivals for elderly patients with newly diagnosed diffuse aggressive B cell lymphomas treated with CHOP + rituximab compared with CHOP alone. Confirmatory cooperative group trials combining chemotherapy with antibody therapies are currently underway. Another approach to augment the efficacy of antibodies is to deploy them in radiolabeled form. Iodine-131, Yttrium-90, and Copper-67 labeled monoclonal antibodies targeting CD-20, CD-22, HLA class II, and other cell surface antigens have been tested and demonstrate higher overall response rates (50-80%) and complete response rates (20-40%) than unlabeled antibodies. Pilot studies combining radiolabeled antibodies with either standard dose chemotherapy or myeloablative chemoradiotherapy with stem cell transplantation also appear very promising. Lymphoma vaccines have also produced very encouraging results in single institution studies at Stanford and the National Cancer Institute, with responding patients demonstrating superior event-free and overall survival than historical controls. Phase III randomized trials of idiotype vaccines are currently underway and novel new vaccine approaches